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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------------|------------------------|
| 10/647,253 | 08/26/2003 | Yasunori Ando | 116942 | 2080 |
| 7590 Oliff & Berridge, PLC Suite 500 277 South Washington Street Alexandria, VA 22314 | 05/16/2007 | | EXAMINER HOFFMANN, JOHN M | |
| | | | ART UNIT 1731 | PAPER NUMBER |
| | | | MAIL DATE 05/16/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/647,253 | ANDO ET AL. | |
| | Examiner | Art Unit | |
| | John Hoffmann | 1731 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 April 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 14, 15, 17, 18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 14-15, 17, 21 and 18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Claims 14-15 and 17-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese publication 1-188479 (KATO) in view of Schonfelder 5746969, Chia 5298470 and Jarco 4207306.

See how the first three references were previously applied. Claim 14 has been amended to recite the specific porosity (by size and volume), and the specific heating parameters (times, temperatures and durations).

The heating parameters would have been obvious matter of routine experimentation so as to determine the optimal processing parameters. As indicated in Jarco (for the past 30 years) it is known to control rate and duration of heating up to sintering temperatures to avoid cracking. And that this is a matter of easy determination by a technician in the art. It is also a matter of common sense that cooling/heating glass and/or ceramics at too high a rate, that such can cause them to crack. It is not a matter of innovation to seek out optimal heating rates.

As to the porosity – it is clear from the references that one can tailor the porosity of the ceramic – based upon what is desired.

From MPEP 2144.04

A. Changes in Size/Proportion

In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955) (Claims directed to a lumber package "of appreciable size and weight requiring handling by a lift truck" where held unpatentable over prior art lumber packages which could be lifted by hand because limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art.); In re Rinehart; 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) ("mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled." 531 F.2d at 1053, 189 USPQ at 148.).

In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that,

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where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

It is not invention (generally) to reduce/increase the size or number of pores. It is well understood that one would be motivated to change the porosity of the final filters – dependant upon what one intends to filter, and the requisite strength needed.

As indicated at page 2, lines 5-10 of applicant's specification, the object of the invention is to make a conventional filter, but in an inexpensive manner. The references used in the rejection show that it was already known to use the same ingredients that applicant used. Using more economical starting materials would solve an implicit "design need or market pressure" to save money. It is deemed using known ingredients to make a known product is a matter of ordinary skill – or even common sense – not innovation. It is merely a matter of ordinary skill to find the optimal processing parameters.

As indicated by the Supreme Court in KSR vs. Teleflex:

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under §103.

Claim 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese publication 1-188479 (KATO) in view of Schonfelder 5746969, Chia 5298470 and Jarco 4207306 as discussed above, and further in view of Kingery, "Introduction to Ceramics" page 9.

See the prior Office action for the manner in which Kingery is applied.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

It is argued that the sintering rates and temperatures are not taught or suggested by the cited references. This is deemed to be largely irrelevant. As indicated above, thermal processing parameters are known to be important in making ceramic articles, however, finding the optimal values is an easy and routine endeavor for the technician. Applicant has not pointed out any criticality or non-obviousness which suggests the present values were anything but the result of ordinary skill and/or common sense.

It is further argued that a combination of Kato and Schonfelder would not result in the claimed invention, because Schonfelder discloses the use of a vacuum. There is no explanation which shows why one would use a vacuum in the combined process. One of ordinary skill would realize that the vacuum is used in Schonfelder to remove gases – which, if left in the ceramic, would tend to go against the desire for a high density ceramic. In other words: Schonfelder is relied upon to show what is known about sintering aids – not sintering atmospheres (or the lack thereof).

It is also argued that Chia is directed to silicon carbide, not silicon nitride. Although Chia is predominately concerned with silicon carbide, it also points to the sintering aids in silicon nitride (col. 1, lines 46-47). From figure 1, and col. 6, line 60 to col. 7, line 1, Chia teaches that there are three stable ratios when using alumina and yttria as sintering aids. One would be motivated to also use the same ratios in Kato, for

the same reason -- stability of the compound. One would not use the carbide temperatures when making a nitride -- as applicant admits. Clearly one would perform routine experimentation to determine which temperatures would be optimal.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Thus it does not matter that Schonfelder and Chia do not teach the relevant sintering conditions. The same applies to the arguments regarding density.

It is argued that the Chia's ratios refer to molar ratios of yttrium to aluminum , not their oxides. This is not convincing because 1) the phase diagram clearly shows the oxides as stable compounds in those ratios and 2) because yttria and alumina would have the same 1:1 ratio as in their non-oxide forms. 1 mole of yttria has two moles of yttrium atoms. And 1 mole of alumina has 2 moles of aluminum atoms.

It is further argued that Chia uses aluminum nitride rather than aluminum oxide. This is not convincing, since col. 6, lines 66-67 indicates that both the aluminum and yttrium are in the oxide compound -- YAP (col. 6, lines 18-13). Nonetheless, col. 7, lines 6-10 of Chia teaches the choice of additives, as well as their amounts, depends upon the desired properties of the final product.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

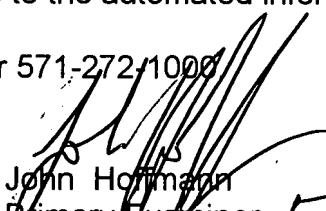
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


John Hoffmann
Primary Examiner
Art Unit 1731

5-14-07

jmh